



Autism and Epilepsy:

Clinical profile across the lifespan

*Presentation for the Interagency Autism Coordinating Committee
July 10, 2012*



Geraldine Dawson, Ph.D.
Chief Science Officer, Autism Speaks
Professor, Department of Psychiatry, UNC Chapel Hill

Seizure disorders affect 15-30% of children with ASD

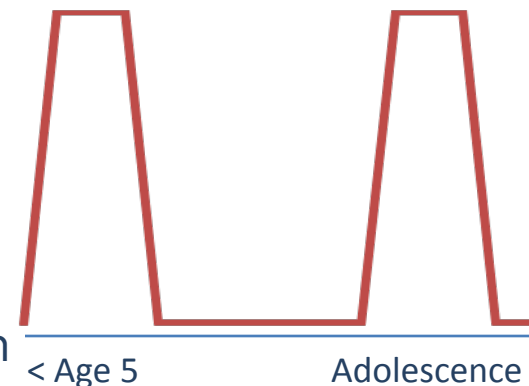
Prevalent in ASD

- Epilepsy
- Epileptiform abnormalities

Impact

- Poorer outcomes than ASD individuals without epilepsy
 - Adaptive outcomes
 - Behavioral outcomes
 - Social outcomes
- Increased behavioral challenges
- Increased motor problems
- Increased mortality rate

- Age of onset is bimodal
- Higher prevalence of epilepsy in children with
 - Syndromic autism
 - Motor impairments
 - Intellectual disability
 - Females (often associated with cognitive impairments)
- Relationship of autistic regression to epilepsy is not definitive
- Children with infantile spasms more likely to develop autism



The clinical profile of autism with epilepsy

Epilepsy in autism: features and correlates

Patrick F. Bolton, Iris Carcani-Rathwell, Jane Hutton, Sue Goode, Patricia Howlin and Michael Rutter

BJPsych

The British Journal of Psychiatry (2011)
198, 289–294. doi: 10.1192/bjp.bp.109.076877

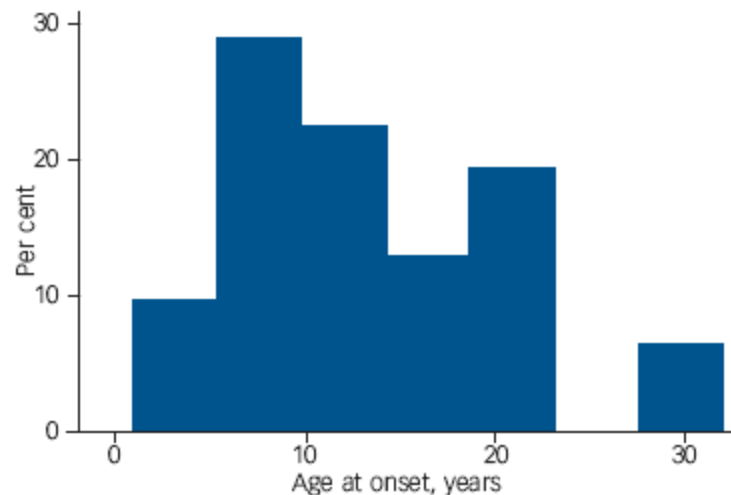


Fig. 1 Age at onset of seizures.

Bolton et al., 2011

- 175 individuals followed through 21 years
- 22% developed epilepsy (after 10 yrs for most)
- More common in females than males
- Epilepsy associated with lower nonverbal IQ, lower verbal abilities and social skills



Amiet et al., 2008

- Meta-analysis of 24 studies on autism (N = 2112) and epilepsy (N = 1530)
- Epilepsy present in 21.5% of patients with autism and ID vs. 8% in patients with autism without ID
- Girls with autism more likely to have epilepsy



Autism Treatment Network

Rates of epilepsy

N = 4,321

	Autism N=2895	Aspergers N=369	PDD N=1057	ASD N=4321
NO	56.9%	7.6%	21%	85.5%
YES	10.1%	0.9%	3.5%	14.5%
TOTAL	67%	8.5%	24.5%	100%



Autism Treatment Network

Rates of epilepsy

N = 4,321

	Autism N=2895	Aspergers N=369	PDD N=1057	ASD N=4321
NO	56.9%	7.6%	21%	85.5%
YES	10.1%	0.9%	3.5%	14.5%
TOTAL	67%	8.5%	24.5%	100%



Autism Treatment Network

Rates of epilepsy by IQ

N = 4,321


	<70 N=2370	>70 N=1951	Total N=4321
No	46.3%	39.2%	85.5%
Yes	8.5%	5.9%	14.5%
Total	54.8%	45.3%	100%

Epilepsy and sleep disturbance

- Epilepsy is associated with sleep disturbances in children with and without ASD.
- Recent review of 17 studies on sleep and ASD (Hollway and Aman, 2011) found that epilepsy and other medical conditions are associated with disrupted sleep in individuals with ASD.
- Sleep disturbances are associated with:
 - Increased aggressive behavior, irritability, and inattentiveness
 - Sleep disturbance, rather than seizure severity, may contribute to difficulties with irritability and attentiveness (Becker et al., 2004)



Clinical evaluation and treatment

- All seizure types reported, but complex partial seizures are most frequent; signs of CPS are similar to some ASD behaviors (unresponsive to name, repetitive movements).
- EEGs are helpful but difficult to perform. Prolonged/overnight studies are more sensitive than routine ones.
- High rates of epileptiform EEGs have been reported in children with ASD without clinical epilepsy; clinical significance is unclear. 
- Evaluation of genetic etiology is important because seizures are more common in syndromic forms of ASD.
- Anticonvulsant treatment choice is related to type of seizure, EEG findings, and tolerability of medication.

Common neurological co-morbidities in autism spectrum disorders

Kiran P. Maski^a, Shafali S. Jeste^b and Sarah J. Spence^a

Current Opinion in Pediatrics 2011, 23:609–615

Current Standards for Treatment and Management

Current Standards

- AAP Identification and Management of ASD
- ASD Practice Parameter
(American Academy of Neurology and Child Neuro)
- AAP Autism Tool Kit

Limitations

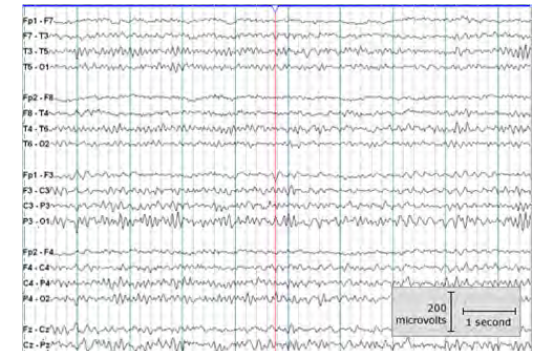
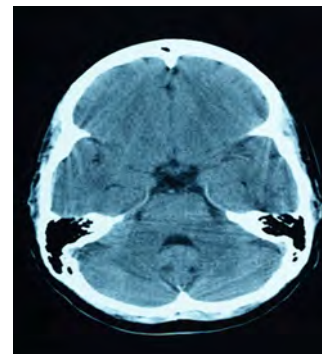
- Need more information on evaluation of epilepsy
- Autism Tool Kit is resource but not guideline



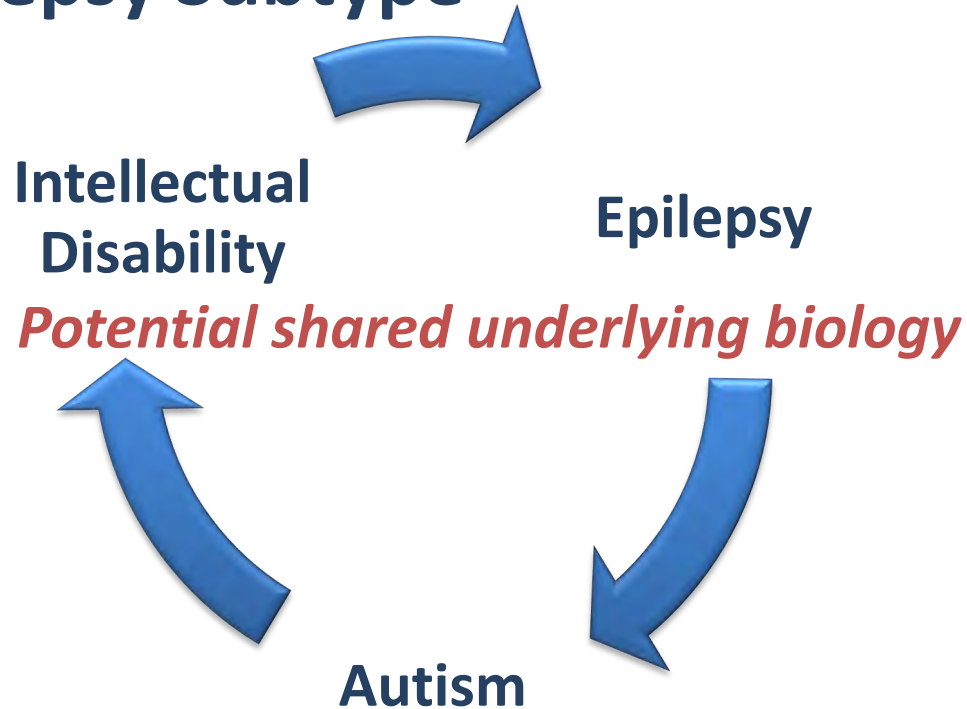
ATN/AIR-P Activities



- Clinical Practice Guidelines for EEG
- Clinical Practice Guidelines for Neuroimaging testing
- To be published in 2013



Autism-Epilepsy Subtype



- Identifying this shared biology can have consequences for identifying
 - common genetic and other types of risk factors
 - common biological targets for treatment